

nothing, in respect to that increase and decrease which the said Ocean hath in the coasts of *Spaine* and *Flanders*. But this is yet a greater thing, that also the selfe same Ocean in the coasts of the said firme Land lying toward the South, in the Cite of *Panama*, and also in the coast of that Land which lyeth toward the East and West from that Citle, as in the Iland of *Pearles* or *Margarita*, which the *Indians* called *Tarrarequi*, and also in *Taboga* and *Otoque*, and in all other Ilands of the South Sea of *Sur*, the water riseth and falleth so much, that when it falleth, it goeth in manner out of sight, which thing I myselfe haue seene oftentimes. And here your Maiestie may note another thing, that from the North Sea to the South Sea, being of such difference the one from the other in rising and falling, yet is the Land that diuideth them not past eighteene or twentie leagues in breadth from Coast to Coast. So that both the said Seas, being all one Ocean, this strange effect is a thing worthy greatly to bee considered of all such as haue inclination and desire to know the secret workes of Nature, wherein the infinite power and wisedome of God is seene to be such as may allure all good Natures to reurence and loue so diuine a Maiestie.

RECENT PAPERS BEARING ON METEOROLOGY.

H. H. KIMBALL, Librarian.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the Library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear to the compiler likely to be of particular interest in connection with the work of the Weather Bureau. Unsigned articles are indicated by a —

Bulletin of the American Geographical Society. New York. Vol. 38. Feb., 1906.

Abbe, Cleveland. The present condition in our schools and colleges of climatology as a branch of geography and of meteorology as a branch of geophysics. Pp. 121-123.

Abbe, Cleveland. A modified polar projection adapted to studies in dynamic meteorology. Pp. 126-128.

Rotch, A. Lawrence. Proof of the existence of the upper anti-trade and the meteorological conditions at lesser heights in the northern Tropics. Pp. 128-130.

Brown, Robert Marshall. Notes on the Mississippi River flood of 1903 and on floods of other years. Pp. 131-134.

Nature. London. Vol. 73. Feb. 1, 1906.

B., T. G. Variation of glaciers. Pp. 320-321.
— International Meteorological Conference at Innsbruck. Pp. 331-332.

Nature. London. Vol. 73. Feb. 8, 1906.
Report of the meeting of the Solar Commission at Innsbruck. Pp. 352-354.

Nature. London. Vol. 73. March 1, 1906.
Kingsmill, Thos. W. A 300-year climatic and solar cycle. Pp. 413-414.

Hildebrandsson, H. Hildebrand. Studies of clouds. Pp. 416-417.

Nature. London. Vol. 73. March 8, 1906.

Rotch, A. L[awrence] and Teisserenc de Bort, L[eon]. The vertical distribution of the meteorological elements above the Atlantic. Pp. 449-450.

Proceedings of the American Association for the Advancement of Science. Boston. Vol. 41. Feb., 1906.

Richards, Theodore W., and Jackson, Frederick G. A new method of standardizing thermometers below 0° C. Pp. 451-454.

Quarterly Journal of the Royal Meteorological Society. London. Vol. 32. Jan., 1906.

Moore, John W. The rainstorm of August 24-26, 1905, in eastern Ireland. Pp. 1-10.

Newton, William B. The aquameter. Pp. 11-13.
— Rainfall of China and Korea. [Extract from paper by T. Okada.] P. 28.

Sutton, J. R. Comparison between Glaisher's factors and Ferrel's psychrometer formula. Pp. 35-45.

Ball, John. A rapid method of finding the elastic force of aqueous vapor and the relative humidity from dry-bulb and wet-bulb thermometer readings. Pp. 47-52.

Meinardus, Wilhelm. Variations in the circulation of the North Atlantic and the phenomena connected therewith. [Translated by R. H. Scott.] Pp. 53-55.

Science. New York. New Series. Vol. 23. Feb. 16, 1906.

McKee, Ralph H. The primeval atmosphere. Pp. 271-274.

Science. New York. New Series. Vol. 23. March 9, 1906.

Tamura, S. Tetsu. Japanese meteorological service in Korea and China. Pp. 396-397.

Synons's Meteorological Magazine. London. Vol. 41. Feb., 1906.

W., A. The packing of meteorological instruments. Pp. 9-10.
Annuaire de la Société Météorologique de France. Paris. 54 année. Jan., 1906.

Teisserenc de Bort, L[eon]. Sur l'études des alizés et des contréalisés sur l'Atlantique Nord. Pp. 9-14.

Durand-Gréville, E. Les cartes d'isobars par millimètre et la prévision journalière du temps. Pp. 27-32.

Teisserenc de Bort, L[eon]. Le concours de prévision du temps de Septembre 1905. Pp. 32-35.

Ciel et Terre. Bruxelles. 26 année. 1 fév., 1906.

Hergesell, H[ugo]. L'état actual et l'avenir de la météorologie maritime. Pp. 567-575.

Ciel et Terre. Bruxelles. 26 année. 16 fév., 1906.

— La couche d'air chaud des régions élevées de l'atmosphère. [Note.] Pp. 610-612.

— Effets magnétiques de la foudre sur les roches volcaniques. [Note.] Pp. 615-616.

Revue Néphologique. Mons. Fév., 1906.

Bracke, A. Formation de ciel moutonne. Pp. 9-11.

B[racke], A. Le relief du sol et la pluie. Pp. 13-14.

Bracke, A. La direction des cirrus. Pp. 14-16.

Annalen der Hydrographie und Maritimen Meteorologie. Berlin. 34 Jahrgang. Heft 2. 1906.

Köppen, W. Die Drachenstation der Deutschen Seewarte. Pp. 49-62.

Annalen der Hydrographie und Maritimen Meteorologie. Berlin. 34 Jahrgang. Heft 3. 1905.

Köppen, W. Die Drachenstation der Deutschen Seewarte. Pp. 97-110.

Heyne, —. Die Witterung zu Tsingtau im Juni, Juli, und August 1905, nebst einer Zusammenstellung für den Sommer 1905. Pp. 110-114.

Aus dem Archiv der Deutschen Seewarte. Hamburg. 28 Jahrgang. No. 2, 1905.

Knoche, Walter. Ueber die räumliche und zeitliche Verteilung des Wärmegehalts der unteren Luftsicht. Pp. 1-46.

Gaea. Leipzig. 42 Jahrgang. März 1906.

— Die Bekämpfung des Nebels durch Elektrizität. Pp. 150-151.

— Die Störungen der Luft und des Wassers. Pp. 153-159.

Illustrirte Aeronautische Mitteilungen. Strassburg. 10 Jahrgang. Feb., 1906.

Wegener, Kurt. Die meteorologischen Schwierigkeiten der Drachenaufstiege. Pp. 33-40.

— Ein neuer Windmesser für direkte Ablesung. Pp. 85-87.

Meteorologische Zeitschrift. Braunschweig. Band 23. Feb., 1906.

Gockel, A[lbert]. Ueber den Ionengehalt der Atmosphäre. Pp. 53-67.

Klein, [Hermann Joseph]. Cirrus-Studien. Pp. 67-82.

Hann, J[ulius]. Der Pulsschlag der Atmosphäre. Pp. 82-86.

— Ergebnisse meteorologischer Beobachtungen in Ost-Spitzbergen 1894-94. Pp. 87.

Polis, P[eter]. Ergebnisse der Luftdruckregistrierungen zu Aachen 1896 bis 1903. Pp. 87-92.

Zöllner, S. Graphische Darstellung der täglichen Bestrahlung der Erde durch die Sonne in verschiedenen Monaten und Breiten. Pp. 92-94.

Less, E[mil]. Thévenet: Recherches sur la prévision du temps en Algérie. Pp. 94-95.

Mitteilungen von Forschungsreisenden und Gelehrten aus den Deutschen Schutzgebieten. Berlin. 18 Band. 4 Heft 1905.

Uhlig, C. Regenmessungen aus Deutsch-Ostafrika. Pp. 352-359.

— Resultate der meteorologischen Beobachtungen in Herbersts-höhe. Pp. 360-367.

— Resultate der Regenmessungen in Kaiser-Wilhelmsland, im Bismarck-Archipel, auf den Karolinen, Marianen, und Marshall-Inseln. Pp. 368-375.

Hemel in Damprink. Amsterdam. 3 Jahrgang. Feb., 1906.

Nell, Chr. A. C. Uitkomsten der waarnemingen omtrent poolbanden, van 1874 tot 1894 hoofdzakelijk te Groningen en te Ooster-beek (bij Arnhem) verricht door Civ. Ing. H. I. Groneman. Pp. 145-150.

Nell, Chr. A. C. De halo's. Pp. 157-162.

RECENT ADDITIONS TO THE WEATHER BUREAU LIBRARY.

H. H. KIMBALL, Librarian.

The following titles have been selected from among the books recently received, as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies. Most of them can be loaned for a limited time to officials and employees who make application for them.

Asociacion de Ingenieros y Arquitectos de Mexico.
Anales. Tomo XII. 341 pp. 8°. Mexico. 1904.

- Baden.** Zentralbureau für Meteorologie und Hydrographie. Ergebnisse der Untersuchung der Hochwasserverhältnisse im Deutschen Rheinengebiet. VII. Heft. Das Moselgebiet. 67 pp. f°. Berlin. 1905.
- Belgium.** Commission de la Belgica. Expédition antarctique belge. Rapports scientifiques. Resultats des voyages du S. Y. Belgica. Vol. I. v. p. f°. Anvers. 1905.
- Börnstein, R[ichard].** Leitfaden der Wetterkunde. xi, 230 pp. 8°. Braunschweig. 1906.
- Carnegie Institution of Washington.** Contributions from the Solar Observatory, Mt. Wilson, California. (Repr. from Astrop. J., v. 23, Jan., 1906.)
3. A programme of solar research. By George E. Hale. 5 pp.
 4. Some tests of the snow telescope. By George E. Hale. 5 pp.
 5. Photographic observations of the spectra of sun spots. By George E. Hale and Walter S. Adams. 34 pp.
 6. Some notes on the H and K lines and the motion of the calcium vapor in the sun. By Walter S. Adams. 9 pp.
 7. The five-foot spectroheliograph of the solar observatory. By George E. Hale and Ferdinand Ellerman. 10 pp.
- Cattell, J[ames] McKeen (Ed.).** American men of science. vii, 364 pp. 4°. New York. 1906.
- Ceylon. Surveyor-General.** Report on the meteorology of Ceylon for 1904. (Administration reports, 1904. Part IV.) f1-41. f°. [Colombo, 1905.]
- Dechevrens, Marc.** La pression et la température dans l'air dans les cyclones et les anti-cyclones. 7 pp. 4°. n.t.p.
- Geneva. Observatoire de Genève.** Résumé météorologique de l'année pour Genève et le Grand Saint-Bernard. 104 pp. 8°. Genève. 1905.
- Great Britain. Meteorological Office.** The relation between pressure, temperature, and air circulation over the South Atlantic Ocean. By M. W. Campbell Hepworth. 12 pp. 8°. London. 1905.
- Hamburg. Deutsche Seewarte.** Deutsches Meteorologisches Jahrbuch für 1904. vi, 182 pp. f°. Hamburg. 1905.
- Hongkong Observatory.** China coast meteorological register. 1905. n. p. f°. [Hongkong.] 1905.
- India. Meteorological Department.** Copies of memoranda on the monsoon submitted to Government in April, May, June, August, and September, 1905, and a comparison of the forecasts with the actual rainfall. v. p. f°. [Simla.] 1906.
- Innsbruck. Universität. Meteorologisches Observatorium.** Beobachtungen. 1901. n. p. 8°. Innsbruck. 1903.
- Same. 1902. n. p. 8°. Innsbruck. 1905.
- Kungl. Svenska Vetenskapsakademien.** Meteorologiska iakttagelser. 1904. x, 157 pp. f°. Upsala. 1904.
- Mexico. Observatorio Meteorológico Magnético Central.** Tiempo probable durante el año meteorológico de 1906 en la República Mexicana. 10 pp. 4°. Mexico. 1906.
- Moscow. Agronomic Institute. Meteorological Observatory.** Observations. [Russian text.] 1903. xxxix, 72 pp. 8°. Moscow. 1904.
- Same. 1904. xlvi, 72 pp. 8°. Moscow. 1906.
- (13th) National Irrigation Congress, Portland, Oregon. Official proceedings. 280 pp. 8°. Portland. 1905.
- Oaxaca (State). Observatorio Meteorológico Central.** Decreto que establece la red meteorológica del Estado de Oaxaca. 10 pp. 4°. Oaxaca. 1905.
- Oña (Spain). Colegio Maximo de la Compañía de Jesús.** Observaciones meteorológicas de 1905. 60 pp. 8°. Oña. 1906.
- Puente, Carlos.** Meteorología popular e referanero meteorológico. I. Climatología. 279 pp. 8°. Madrid. 1896.
- San Fernando. Instituto y Observatorio de Marina.** Anales. Sección 2a. Observaciones meteorológicas, magnéticas y seismicas. Año 1904. vii, 155 pp. f°. San Fernando. 1905.
- Sandström, J. W.** On the construction of isobaric charts for high levels in the earth's atmosphere and their dynamic significance. (Extr. from Trans. Amer. phil. soc. N. S. v. 21, Pt. 1. Pp. 31-94. Phila. 1905.)
- Société Astronomique et Météorologique de Port au Prince.** Bulletin annuel. 15 pp. 4°. Port au Prince. 1906.
- Ward, Robert De C[ourcy].** The hygiene of the zones. (Repr. from Bull. geogr. soc. Phila. v. 4, No. 2. Jan., 1906.) 27 pp. 8°.
- Wood, Robert W[illiams].** Physical optics. xiii, 546 pp. 8°. New York. 1905.

PUBLICATION OF RIVER GAGE READINGS.

River stations are maintained by the Weather Bureau in the interest of navigation. At the present time the numerous

stations report by telegraph to 24 district centers, where forecasts and warnings are issued under the supervision of the Central Office at Washington, D. C. The publication of the 8 a. m. readings of the river gages is of great importance to local hydraulic engineers, and the seventh volume of such publication, by Prof. H. C. Frankenfield, has just been issued by the Weather Bureau. The whole series of volumes covers the following periods, respectively: Part I, 1858-1889; Part II, 1860-1889; Part III, 1875-1889; Part IV, 1890-1892; Part V, 1893-1895; Part VI, 1896-1899; Part VII, 1900-1904.

The river stages given are vertical heights, in feet and tenths of a foot, of the river surface above or below an arbitrarily assumed plane, which is approximately that of lowest water occurring at any place with a natural free flow of water. Abnormally low water due to an ice gorge above a station is not considered in establishing low water.

Observations of river stages are made as near 8 a. m., seventy-fifth meridian time, as the exigencies of the service will permit.

The tabulated gage readings are preceded by a statement which includes the locations of stations, description of gages and bench marks, heights of danger lines, low water and flood marks, and other data for the various river stations whose gage readings are included in the tables. The gage readings are arranged by river systems, and are preceded by two indexes—one alphabetical with respect to the various river systems, and the second following the arrangement of the text. The former is useful in studying the regimen of any given river, while the latter enables ready reference to be made to any desired station.

Following the descriptive text are given tables of elevations of zeros of river gages above mean sea level, danger-line stages, and the lengths of the rivers and their drainage areas.—C. A.

WEATHER BUREAU MEN AS EDUCATORS.

Mr. S. S. Bassler, Local Forecaster, Cincinnati, Ohio, under date of February 23, reports that on February 21 he read a paper on the work of the Weather Bureau before a farmers' institute at Amelia, Ohio.

Mr. Patrick Connor, Local Forecaster, Kansas City, Mo., reports a short address on the weather before the meeting of the school principals of that city December 16, 1905.

Mr. M. L. Fuller, Assistant Observer, reports the following lectures given during February and March: February 9, before the Chickasaw County Farmers' Institute, Nashua, Iowa, an illustrated address on weather forecasts, and how the farmer may profit by them. February 10 and 14, at Weather Bureau office, Charles City, to teachers from local high school and Charles City College, and to the local press; also February 19, at Mason City, Iowa, High School; also March 12, at Storm Lake, Iowa, High School, a lecture, illustrated by stereopticon, on weather forecasts and the work of the Weather Bureau. February 14-17, a series of four 40-minute addresses before the students of Charles City College. February 19, office equipment explained to 30 students of the college. March 8, before the Dows, Iowa, High School; also March 12, at Buena Vista College, an address on forecasts and the Weather Bureau.

Mr. G. A. Loveland, Section Director, Lincoln, Nebr., under date of February 19, 1906, reports the following public addresses recently made by him: Before the teachers of the science section of the Nebraska State Teachers' Association on December 28, 1905, on the subject of clouds, illustrated by stereopticon. Before the Young Men's Christian Association of Exeter, February 9, on how the weather is made.